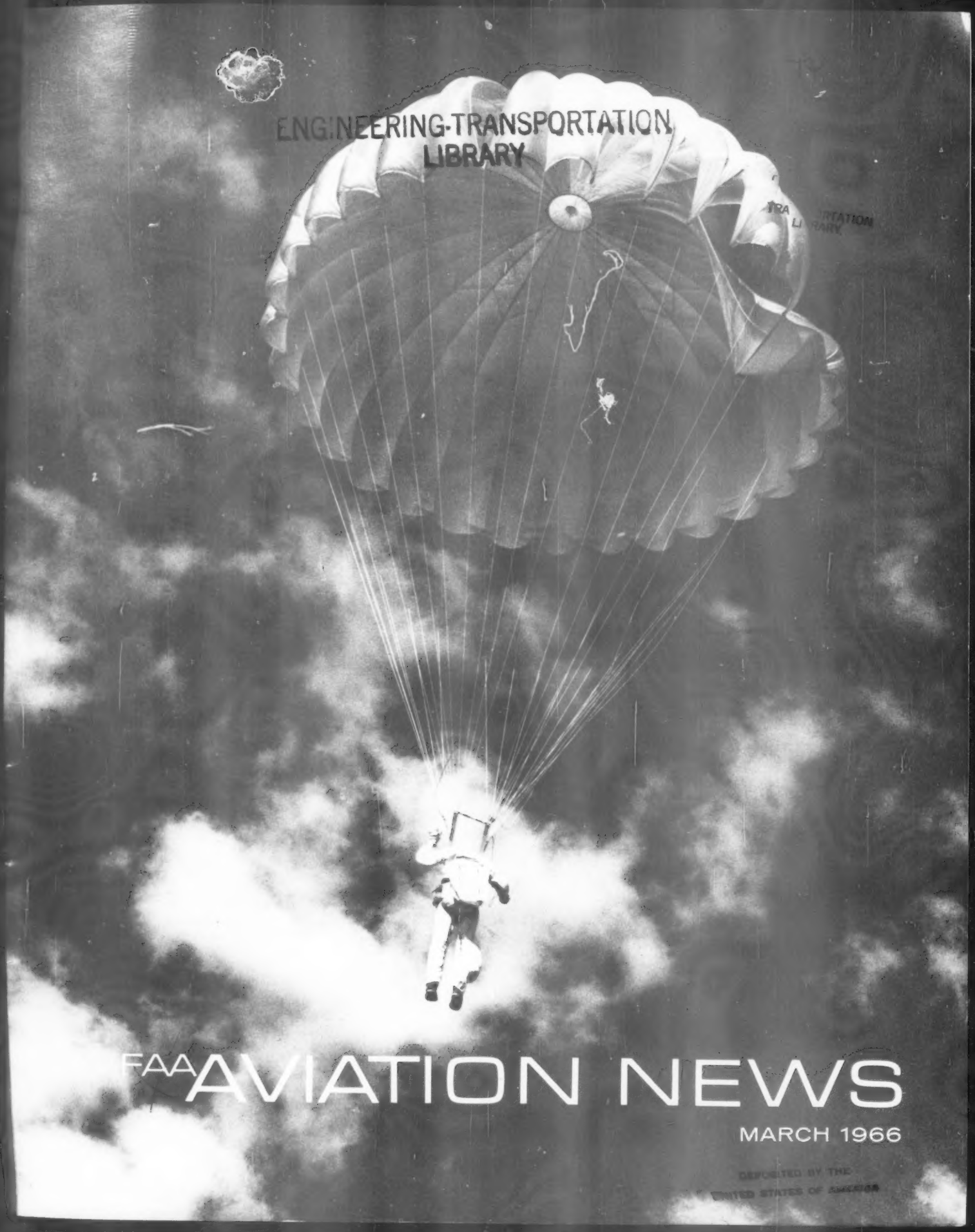

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FAA AVIATION NEWS

MARCH 1966

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FAA AVIATION NEWS

FEDERAL AVIATION AGENCY

VOL. 4, NO. 11 MARCH 1966

COVER

One example of the important role aviation plays in the work of the U.S. Forest Service is dramatized by this smokejumper. (See "The Airborne Foresters," pages 10, 11 and 12.)

FAA AVIATION NEWS is published monthly by the Office of Information Services, Federal Aviation Agency, Washington, D. C. 20553, in the interest of aviation safety and to acquaint readers with the policies and programs of the Agency. The use of funds for printing **FAA AVIATION NEWS** was approved by the Director of the Bureau of the Budget July 14, 1965.

Subscription rates: U.S. $1.50 a year, foreign $2.00 a year, single copies 15 cents. Send check or money order (no stamps) as well as address changes to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

In requesting a change of address, subscribers should include the mailing label from any issue to facilitate the change.

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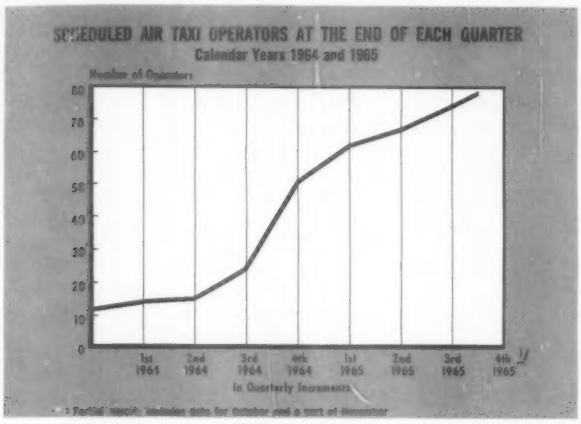
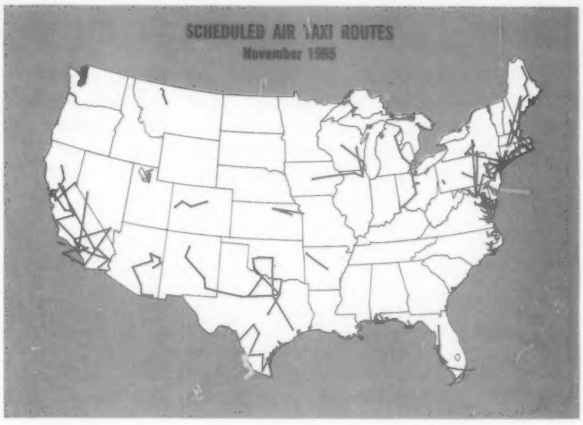




BUSINESS IN SHARP CLIMB FOR SCHEDULED AIR TAXI OPERATORS

Business is booming in the fast growing scheduled air taxi business—and the prospect is that it will expand even more in the very near future.

A Federal Aviation Agency study counted only 12 scheduled air taxi operators flying in January 1964. When the Agency took another look in November 1965, the number had climbed to 78, an increase of 550 per cent in a little less than two years.

What is an air taxi? It is a commercial operation of light aircraft under 12,500 pounds takeoff weight, under authority and regulation of CAB part 298 and FAR 135.

The *scheduled* part of the air taxi business is what is making news—not that the rest of the air taxi business is slowing down. On the contrary; it, too, is surging ahead. At the end of calendar year 1964 there were 2,928 certificated air taxi operators flying 5,267 aircraft, an 11 per cent gain over the 4,759 aircraft operated in 1963. Air taxi mileage climbed 7 per cent from 1.6 million miles in 1963 to 1.7 in 1964.

Expect 100 by 1966

If the trend in the number of scheduled air taxi operators keeps increasing at the present rate, it is expected that by June 30, 1966, there will be approximately 100 in business.

Discarding the view through the crystal ball for the statistic actuality of the FAA report, as of Nov. 5, 1965, scheduled air taxi operators used 361 aircraft, as compared with 72 in January 1964—an increase of 401 per cent.

This figure breaks down into:

- 6 helicopters.
- 105 single-engine, four-place, over.
- 250 multi-engine under 12,500 pounds.

The average number of planes per operator was 4.6.

In all but a few cases, the scheduled air taxi operators are concentrated around air traffic hubs to carry air freight, mail and commuters. The smaller airports they serve radiate from the hubs (the larger air carrier airports) in the nearby suburbs or in communities up to several hundred miles away.

The heaviest concentration is in the northeastern part of the United States, where 32 scheduled air taxi operators offer service.

Eighteen are flying in the western states, mostly in California.

Runs Gamut of Planes

The type of equipment that is used runs the entire gamut of general aviation planes. More than 71 per cent of the aircraft involved are manufactured by Piper, Beechcraft and Cessna. DeHavillands, Aero Commanders, Grummans and Lockheeds make up another 25 per cent.

Likeliest candidate as operator of the oldest and most colorful planes is Sky Tours, Inc., of Port Clinton, Ohio. Among its eight aircraft are two Ford *Tri-Motors* which fly regular schedules from Port Clinton to Put-In-Bay, Middle Bass, North Bass and back. Regular passengers, along with the mail and tourists, are a group of school children who commute from island homes to mainland schools.

Largest operator of scheduled air taxi service is TAG Airlines, Detroit, which has 11 DeHaviland *Doves* and 14 Piper *Aztecs*. The firm is unique in its number and frequency of flights—every 15 minutes at peak hours—approximately 600 flights weekly.

TAG is approved to fly single- and multi-engine land planes VFR, IFR, day, night, passenger and cargo in the continental United States and Canada, excluding Alaska.

Full details on this fast-growing segment of general aviation can be found in *Scheduled Air Taxi Operations as of November 1965*, free from the Federal Aviation Agency, MS-350, Data Systems Division, Statistical Services Branch, 800 Independence Ave., S.W., Washington, D.C. 20553.

APPALACHIAN ACT AIRPORTS APPROVED BY AGENCY

The first airport that will be constructed under the Federal Aid to Airports Program (FAAP) and the Appalachian Regional Development Act of 1965 is slated for Ellijay, Ga., a town of some 1,300 bordering on the Chattahoochee National Forest in the Blue Ridge Mountains of North Georgia.

The airport will link this recreational area with the existing network of airports.

Normally Federal funds for airport construction are allocated on a 50-50 matching basis under the FAAP program, but the Ellijay airport is to receive an additional 30 per cent under the Appalachian Act. The breakdown is $78,485, FAAP, and $47,091, Appalachian. The State of Georgia is putting up $25,000 and Gilmer County, $6,394.

Applications for similar projects have been approved for Mount Airy, N. C. and Point Pleasant, W. Va. Other applications are pending.

TOP TWO AVIATION MECHANICS SAFETY AWARDS WINNERS TO BE ANNOUNCED

The two national winners of the FAA's third annual program of Aviation Mechanics Safety Awards were to be announced this month following state and regional competition. The national winners were to be selected from the 17 regional winners announced last month by the FAA.

All winners, including 38 state winners, will receive a citation and their choice of a tuition-free technical aviation course at the FAA Academy in Oklahoma City and the national winners will be honored with a bronze medalion in Washington, D.C.

The awards program is jointly sponsored by the FAA, the aviation community, and the Flight Safety Foundation which established the committee that selects the national winners. The purpose of the program is to give national recognition to the importance of air safety and to focus the attention of the nation's thousands of aviation mechanics on the role they play in furthering aviation safety.

One national winner will be selected from the seven regional general aviation winners and the other will come from the 10 regional air carrier winners including two two-man teams—one from the European Region, Frank P. Falcara and Raymond R. Kupchik of Pan American Airways, New York, and the other from the Central Region, J. E. Antonich and P. V. Comer, TWA, Mid-Continent International Airport, Kansas City, Mo. The Central Region's general aviation winner is William Craven of Ice Flying Service, Pierre, S. D.

Other regional winners are as follows:

Eastern—C. L. Sparks, American Airlines, Tulsa, Okla., air carrier; William O. Doeppe, Holladay Aero, Inc., Richmond, Va., general aviation.

Pacific—Calvin K. H. Loo, Aloha Airlines, Honolulu, air carrier; Kenneth Matsuda, Aloha Airlines Repair Station, Honolulu, general aviation.

Southern—John E. Gregalot, Eastern Airlines, Miami, air carrier; Milford R. Miner, Golden Isles Aviation, St. Simons Isles, Ga., general aviation.

Southwest—Rex Cavanaugh, Trans-Texas Airways, Houston International Airport, air carrier; Otis L. Hale, Skytravel, Inc., Little Rock, Ark., general aviation.

Western—Harold Priest, West Coast Airlines, Seattle, air carrier; Joseph F. Wischler, Mercury Aviation, Inc., Scottsdale, Ariz., general aviation.

Alaskan—Howard T. Weed, Alaska Coastal Airlines, Juneau, air carrier; Alfred L. James, Alaska Helicopter, Inc., Anchorage, general aviation.

DOES YOUR AIRCRAFT BEAR AUTHORIZED MARKINGS?

With good flying weather ahead, FAA reminds aircraft owners to be sure their aircraft bear the authorized markings before taking to the air this spring.

Announced some six years ago and effective Jan. 1, 1966, Sections 45.25 and 45.29 of the FARs require that fixed-wing aircraft display nationality and registration markings in letters 12 inches high either on the sides of the fuselage or on vertical tail surfaces. New aircraft purchased in recent years have the required markings, and regulations have required that aircraft rebuilt, repainted or refinished within the past four years comply with the requirement.

Pilots who have not flown their aircraft this year have not violated the FARs inasmuch as proper identification and registration markings are required only when aircraft are in operation. Planes not in use are not required to have the markings.

The FAA feels that the current regulation is necessary to carry out the safety and enforcement responsibilities of the Agency. But FAA permits alternate markings for antique aircraft to preserve their authenticity and for aircraft which are too small to carry the 12 inch marking on either the fuselage or vertical tail surfaces.

Firm Underpinnings

Pile driving operations now under way for the construction of a reinforced concrete tower at the Tunis-Carthage International Airport represent part of the world-wide effort being made by the FAA in cooperation with the Agency for International Development and U. S. private industry to develop aviation potential abroad. One of eight FAA-AID projects in the European-Africa area, the project in Tunisia is designed to help that country modernize its international airport by installing the latest types of navigation and lighting aids under a loan program from the U.S. involving some $750,000 for material and equipment.

'Copter Pilots Sought by Army Map Service for Overseas Jobs

The Army Map Service is actively seeking both helicopter and twin-engine fixed wing pilots for civilian positions in Mediterranean, African and Middle Eastern countries.

The salary range is from $7,500 to $12,500 a year with additional allowances for housing, overtime, post differential and per diem when away from the official duty station on business.

FAA Certification Required

Current FAA certification is required in addition to U.S. Civil Service Commission determination of qualifications for the salary level being sought.

The pilots selected will support the world wide Army Map Service program by flying aerial reconnaissance missions to permit survey engineers to establish positions for mapping and geodetic surveys. They will provide transportation to remote base camps, transport equipment and supplies to field survey personnel, fly aerial photographic missions utilizing photo-equipped U-8D aircraft and perform emergency air evacuation and search and rescue missions.

Submit Form 57

Those interested in becoming civilian pilots with the Army Map Service in an extremely challenging job are invited to forward a Federal employment application form (SF 57) to the Personnel Office, Army Map Service, 6500 Brooks Lane, Washington, D.C. 20315.

Down-to-Earth Tower on Wheels Brings ATC Where The Action Is

When flood, storm or other disaster strikes, FAA is often called upon to establish temporary air traffic service for an emergency airlift that can provide food, fuel, clothing, medical supplies and other necessities to the stricken inhabitants. And sometimes a community may have a widely publicized event which will bring several hundred light aircraft into a small, uncontrolled airport.

FAA is seeking a solution to the problem by developing a mobile portable control tower (above) which is part of the "Mobile/Transportable Air Traffic Control, Navigational Aid and Communications System." This one is being evaluated at the FAA Aeronautical Center in Oklahoma City, Okla.

'DENALT' IS NEWEST WORD IN PILOT'S VOCABULARY

General aviation flyers will add a new word to their already bulging bag of acronyms when DENALT takes its place in the lineup.

DENALT — Density Altitude — is a problem that could vex a pilot to death. It is defined as the "density of the air at a given spot in relation to temperature, pressure, elevation and moisture content."

Changes in these factors change the performance characteristics of an aircraft and its propulsion system.

FAA's head of safety education, Donald Houghten, has devised a DENALT performance computer for both fixed and variable pitch propeller airplanes. Four inches in diameter, small enough to fit into a shirt pocket, and workable with one hand, the computer gives an instant readout on takeoff factor and per cent rate of climb.

The DENALT performance computer is intended to supplement and not replace airplane manufacturers' published performance information.

The computers will be given away free at showings of FAA's new 30-minute color film, *Density Altiude.* Expected to be available in April. the film may be ordered through the local general aviation district office. It is intended for showing to aviation groups as an educational tool.

The story line begins with a flight in New Orleans where sea level conditions exist and gradually works its way up to thinner air in the High Sierras near Mt. Whitney, Calif., at a field 1,800 feet long and 9,100 feet above sea level.

'Door-to-Door' Handling Is Set for Neophyte IFR Pilots in FAA Southern Region

A new test program designed to help qualified pilots in the Southeast become better acquainted with IFR operations was announced last month by the FAA Southern Region. The program is limited to the Southeast.

In the new program, called the System Indoctrination Program or "SIP", pilots who have the proper training and official ratings to fly on instruments, but who desire more practical experience, will be encouraged to fly in the IFR system to improve their proficiency and gain self confidence.

Recognizing the limited experience many pilots have in the system, FAA will give them special "door-to-door" handling. Controllers will make certain that pilots clearly understand their clearances which include the altitude they are to fly, the various directions they must go, the radio frequencies they will use and other similar parts of their air traffic clearances.

Air traffic radar service will be provided each pilot to the maximum extent possible. He will be advised of the next radio frequency he is to tune in, his next direction change at a navigation aid and how far he is from his destination. He will be briefed frequently on his exact position as observed on radar.

Since most flying on instruments is done in bad weather, or at least in marginal weather, pilots who elect to fly under the new System Indoctrination Program will be given especially detailed weather briefings before takeoff by FAA flight service specialists.

In announcing the test program, Director James D. Rogers of FAA's Southern Region said, "Many instrument rated pilots tell us that they are reluctant to fly on instruments in the Federal Airways System because they believe the system is too complicated for their limited experience. They also express concern that they may bother the busy FAA air traffic controller or disturb the professional pilot should they cause some disruption to the normal operations because of lack of actual experience.

"We believe that less experienced pilots who participate with us in this "SIP" program will find the system to be far less complicated than they imagine, and that with the additional experience provided by "SIP" they will be able to fly on instruments in the future with confidence."

AMEs HAVE A KEEN EYE FOR THOSE WHO FLY

Of the nation's 181,259 physicians in private practice, some 5,800 have an additional, air-age title to hang on to their M.D. They are the select group designated by the Federal Aviation Agency as Aviation Medical Examiners. In many instances the AME is the only continuing contact the FAA has with general aviation pilots.

In those cases where the AME is also the pilot's own private physician, medical problems are dealt with as they arise, thereby uncovering a potential accident before it can leave the doctor's office.

However, *all* pilots must be examined regularly by an AME. The trip to the doctor's office is often on the way to the hangar since many an aviation medical examiner resides close to the airport. There, he is in an ideal position to provide rapid "human factors" information involving aviation personnel at the grass roots level.

Although AMEs were originally appointed to insure that each airman met the physical standards demanded by the duties he must perform, their activities have expanded with the swift growth of aviation.

Accident investigation is one vital area where AMEs figure more prominently. Today, they investigate almost half of the fatal accidents in general aviation. Frequently, an AME is the first official accident investigator on the scene. After all efforts have been made to rescue survivors, the AME takes steps to preserve medical clues that might be lost or overlooked by the untrained eye. Sometimes the AME must use his influence with local law enforcement officials to protect medical evidence.

With no medical examiner present, there is the danger that the actual explanation of an accident might never be known. This almost happened in a fatal general aviation accident on the east coast which was first attributed solely to weather. Medical examination indicated the pilot succumbed to carbon monoxide poisoning. This finding led to closer inspection of the airplane which revealed where the fatal CO had been seeping into the cockpit.

In another accident, a 40-year-old pilot was seen flying erratically as he made several attempts to land before crashing in a wooded section near the airport. An AME was on the crash site within minutes. The pilot, unconscious but apparently uninjured by the accident, died within an hour. The AME found his blood pressure to be 260/120 and the diagnosis was in-flight stroke which produced paralysis on the right side of the body.

Although the AME is considered an employee of the FAA while investigating accidents, he serves without compensation and is reimbursed only for the direct expenses he incurs during the accident investigation. Despite the discomforts attending accident investigations and the uncompensated time and effort involved, about 75 per cent of the FAA's 5,800 AMEs have volunteered to take part in accident investigation.

Though most AMEs are pilots or former flight surgeons, the FAA requires them all to continue their training by attending seminars at least once every three years. (See January 1966 *FAA Aviation News.*)

Many AMEs also serve as volunteer speakers at various pilot meetings conducted by the FAA, state aviation commissions, schools and pilot groups. Typical subjects discussed are the effects on pilots of drugs, alcohol and carbon monoxide, fatigue, illness, hyperventilation, disorientation, safety equipment and the use of oxygen.

Pilots are well advised to know how to contact their AME. Since the FAA has made an effort to have an AME within 50 miles of every pilot, except, perhaps, in the desert and wilderness areas, it should not be difficult to find one in every corner of the nation. While there is no FAR on the subject, virtually every flight instructor and fixed base operator can supply the name of one or more AMEs and probably every airport of size in the country has an AME directory available.

At some moment in a pilot's life, an AME may be the best friend he ever had.

The medical investigator said that shoulder harnesses could have saved the lives of the pilot and copilot who died in this accident.

Riding the Range In a Super Cub

Rancher's Top Hand

Irving K. Bollenbach, chairman of the Oklahoma Aeronautics Commission, tooled his Piper *Super Cub* a few hundred feet above the Cimarron River cattle spread, banked sharply above a cow and young calf huddled in the brush obscured from ground view and radioed his cowboys on the ground of the find.

This wasn't a demonstration—it is a daily routine for this Oklahoma booster of putting aviation to work on the farm. Bollenbach had used the Piper to drive the herd from one range to another as his workers made a head count. They radioed him how many were missing and within minutes he had the strays pinpointed.

He then brought the plane down in a pasture near the herd—the herd will often gather at a regular feeding area in response to the aircraft's noise—supervised their feeding and checked their condition. On the 12-mile return flight to the Kingfisher Airport, which he owns, he examined a stretch of fence.

The day's cattle herding was over for the Oklahoman in a couple of hours, rather than the full day it would have taken if performed in a conventional manner on horseback or Jeep. Cost-conscious Bollenbach had learned that an airplane will cut time and wages to about 25 per cent of their former costs.

In addition, he uses the aircraft for hunting coyotes and wolves which may prey on some types of domestic animals and livestock. They can be spotted from the air and the targets radioed to ground hunters.

Bollenbach, like many of his aerial colleagues, has used aircraft in such operations for some time. Twenty years ago, after several thousand hours as a flight instructor in World War II, he started a cropdusting and flying service at the Kingfisher Airport, northwest of Oklahoma City. Cattle-tending by airplane grew out of his activities.

The same inroads into the cattle country have been made by the airplane and helicopter throughout the entire Southwest. Private ranch strips dot the country to accommodate aircraft.

Ranchers themselves or hired pilots use planes to check herds, drive cattle and ride fences in only a fraction of the time of the traditional cowboy and his horse. The glamour of the cattle country is not being lost to the airplane, it has only been shifted to a new dimension.

Below, Irving K. Bollenbach, right, chats with FAA's James D. Sweep after landing near ranch headquarters.

FLIGHT SAFETY

Eyeing the Problems of NIGHT FLYING

When you look at something in the dark, what you see largely depends upon how well your eyes have adapted to the darkness—and this takes time. If you have ever entered a darkened theater from the bright outdoors, you have experienced this as you groped blindly for a seat. After six or seven minutes your eyes become much more sensitive. Vision continues to improve, but it may take 30 minutes for the eyes to become fully adjusted to the darkness. The problem of adjusting from darkness to light exists too, but it takes much less time.

The inability of the eyes to adjust to extreme brightness is more serious at night than in the daytime. When the eyes are fully adapted to darkness, a half-second of exposure to strong light can impair vision for several minutes. If you look at the light for a longer period of time, it may take half an hour before the eyes return to peak efficiency.

Although red-lighted cockpit instruments help night vision, conventional white light is also effective and simulates daylight instrument presentation if the light intensity is properly controlled. Pilots should use just enough light to enable them to read the instruments, but keep glare at a minimum. When flying over a brightly lighted city or in an area of severe lightning flashes, brighter cockpit lighting is necessary to soften the rapid change from almost complete darkness to extreme brightness.

When flying at night you should know the location of switches, buttons and controls so that they may be operated without lights. The need for light may be reduced or eliminated by knowing these locations. Identifying controls by feel or by selecting the proper switch by position allows you to devote attention outside, keeping your eyes accommodated to that level of darkness. A flashlight should be available, but avoid flashing either direct or reflected rays into the eyes.

The art of seeing at night involves more than merely adapting the eyes to night vision, and then looking in the general direction of what you want to see. Ordinarily, when something catches your attention out of the corner of your eye, the eyes turn toward the object to get a better look. This is correct for day viewing when the point of sharpest vision is at the center of the eye. At night, however, vision is reduced at the center and *you should always look slightly away from the object you wish to see.* This enables you to see with the most sensitive part of the eye—the area around the center. Frequently, the eyes move irresistibly toward the object. When this happens, move the eyes away momentarily to the other side of the object.

If, for example, you see another aircraft in the distance and then lose it, do not try to bore through the darkness to find it again. Scan in a circle around the area of the other plane, directing your vision always slightly away from it. The object may be sighted again by looking to one side, over, or under it. This takes practice, but it works.

Learn to move the eyes frequently in dim light. Each time they are moved, a degree of sight sensitivity is regained. As you search, do not sweep the sky at random; scan by searching a small area carefully when moving the eyes rapidly to the next area. If the image becomes blurred, blink. Periodic rests improve scanning. This type of viewing, admittedly, is not natural and will have to be practiced until it becomes automatic—but it pays off.

Observe the following night flying precautions:

• *Takeoff.* Avoid looking toward bright lights. The glare of brightly lighted terminal buildings, floodlighted aircraft under repair, or any area of high intensity lighting can impair night

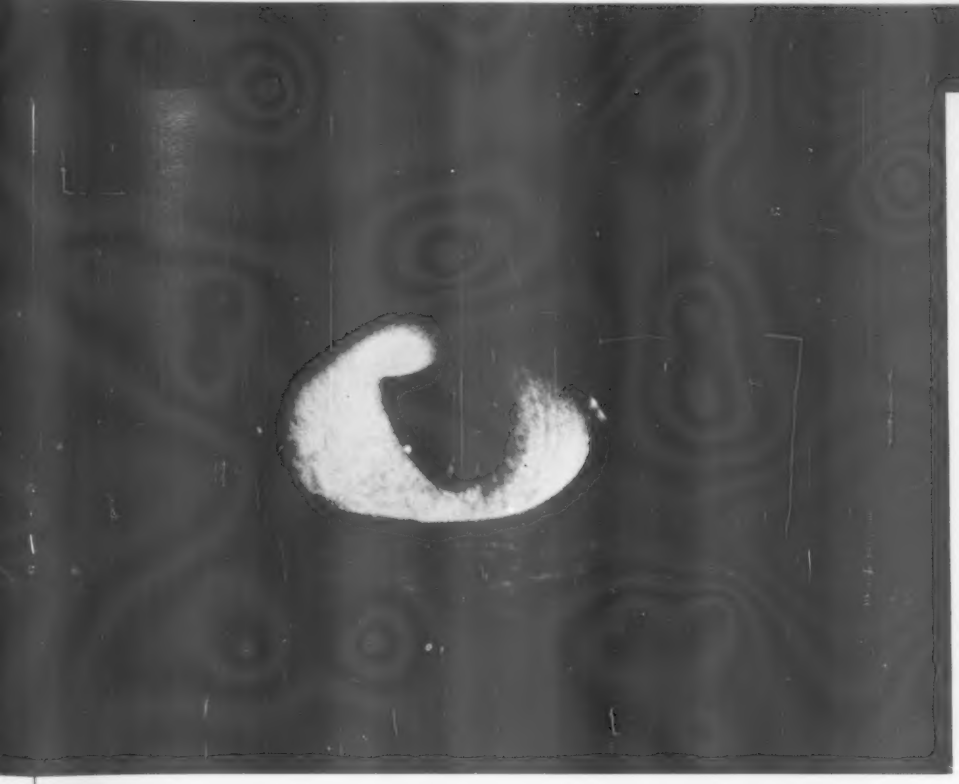


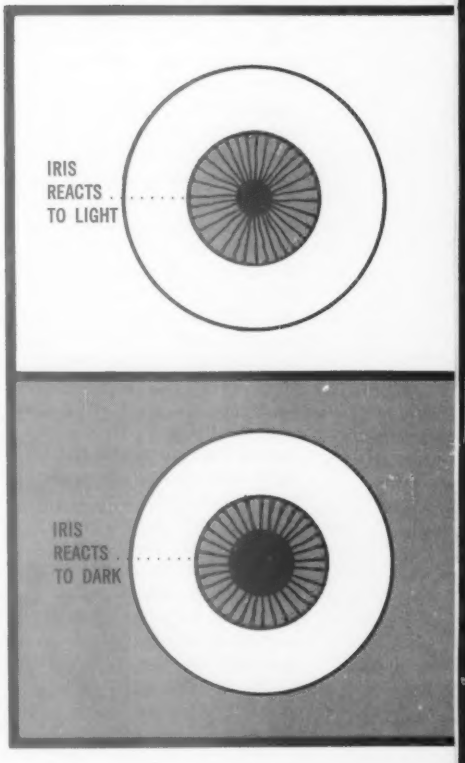
Photo credit: Dr. Joseph R. Spies

vision during takeoff. Use a definite reference point, such as runway lights or even a star, to help maintain directional control. In addition to a ground reference point, frequent reference to the instruments will aid in maintaining proper attitude and direction.

• *En route.* At night, with fewer ground references, altitude and speed are deceptive. Do not attempt violent or abrupt maneuvers. Watch for the disappearance of ground lights below you or look for an area of red or green glow around your wing position lights which indicates you may be entering instrument weather conditions. Fly as high as practicable to see maximum ground area. There is no mystery in night navigation if you make use of available references. Cities, towns, highways and beacons become more clearly visible as your scope of vision increases with altitude.

• *Landing.* Be sure you know and use the field elevation and current altimeter setting to assure proper height of your traffic pattern. Common ground objects, which help you judge altitude and speed in daylight, obviously are not as easily seen at night.

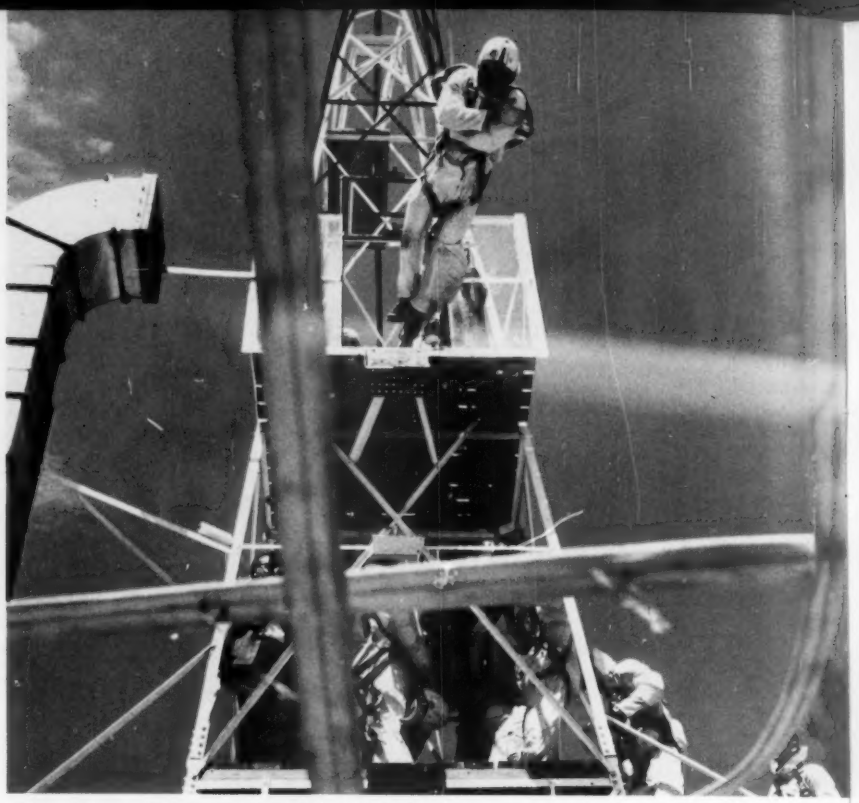
Remember the deceptiveness of altitude and speed at night. A normal approach looks steeper at night, and this creates an illusion of overshooting, an embarrassing as well as costly mistake. Make power approaches for better control of rate-of-descent, and do not become hypnotized by the landing lights. Maintain approach angle by referring to the runway lights. Landing light beams have a psychological attraction that may cause you to fly right into the ground. By dividing your attention among the runway lights, speed and altitude control, and the desired landing spot, this can be avoided. Maintain close control of approach speed. Although your airspeed indicator is the prime source of airspeed determination, remember the relative speed at which you pass over ground objects has a marked effect on your reactions.



Muscles in the iris adjust the size of the pupil to regulate the amount of light entering the eye.

Fighting forest fires, seeding trees and grass, estimating timber reserves and conquering tree diseases are all in the day's work for . . .

THE AIRBORNE FORESTERS



Photography, including cover photo, by U.S. Forest Service.

When forestry was a young profession around the turn of the century, the forest ranger's tools were few. He could pack his marking ax, surveying instruments, fire-fighting tools and other gear on a horse and go about his job protecting America's newly established national forests.

But times have changed since the Forest Service was established in 1905 and made a part of the U.S. Department of Agriculture. The forest ranger may still saddle up occasionally, but he is far more likely to take to the air for many of today's jobs. Aircraft and airborne equipment are basic to the management of our national forest system.

Today, aircraft constantly patrol the forests on the lookout for fires. They provide clear, unobscured eyes for ground fire-fighters and they direct air tankers dropping fire-retardant chemicals. Aircraft carry the renowned smokejumpers to fires in remote locations, and they parachute tools and provisions to hard-to-reach fire camps.

Helicopters carry special two- and three-man crews for initial attack on fires in national forests. They lay hose lines, and do many other jobs not suitable for fixed-wing aircraft.

Aircraft are used for much more than fire control. Aerial spraying of insecticides and herbicides has been refined to a high degree of accuracy. Tree seed is spread on specially prepared planting areas; burned over lands are restored with airborne grass seed. Aerial photography is widely employed for mapping,

Left, smokejumper makes practice jump from shock tower.
Low-level jumper, lower left, and regular smoke jumpers, above,
prepare to take off to fight forest fire.

spotting insect or disease infestations, estimating timber volume and planning forest roads and trails.

All this activity requires the annual use of about 300 fixed-wing aircraft and 200 helicopters based at more than 100 locations. In 1964 they logged 56,785 hours flying time; some 70 per cent was in various aspects of fire control.

The extent of these flying operations is not surprising considering the geography involved. The national forest system includes 154 national forests and 19 national grasslands, covering 186 million acres in 41 states. While much of the area is accessible by roads and trails, the national forests include 14.5 million acres of land held as roadless wilderness.

Forest Service aviation is not new. It goes back to 1919 and a chance meeting between the California regional forester, Coert DuBois, and a young Army Air Corps officer, Maj. Henry "Hap" Arnold. The young major ultimately wore five stars and commanded the United States Air Force in World War II. But in 1919 he was looking for something to maintain interest in the nation's neglected Air Corps. DuBois supplied the answer by getting Army pilots to fly patrol for forest fire detection over the rugged Sierras of California.

Since then, aircraft have played increasingly important roles in the job of the Forest Service. Cargo drops began in 1929 and were refined during the 1930s. Smokejumping became operational in the summer of 1940. Since World War II, helicopters have become extremely important in Forest Service operations, and contribute a major portion of the flying service required.

The types of aircraft used are as varied as the jobs performed. Many of the planes are modern, but still on the roster is a classic Ford *Tri-Motor* "Tin Goose." In fact, planes that have found a place in dropping chemicals read like a World War II aircraft inventory—TBMs, F7Fs, PBYs, AJ2s, B-26s, B-17s, PB4Ys, and the classic Stearman. DeHaviland *Beavers* and a Cessna float plane serve the beautiful wild canoe area at the Superior National Forest of Minnesota. They not only provide fire detection, but deliver maintenance crews, scoop and dump water on fires without landing, and sometimes rescue lost visitors.

More than 80 per cent of the aircraft used are operated under contract by private owners. However, the Forest Service does own about 55 planes, and one helicopter. Included are Aero *Commanders,* twin Beechcrafts, and Beech *Mentors.*

No account of Forest Service aeronautics would be complete without mention of the smokejumpers who parachute to fires in some of the nation's most rugged mountain country. Since the first jump on July 12, 1940, more than 60,000 jumps have been made without a fatality. Injuries are held to a very low level, having been reduced from 1.75 per 100 jumps during the years 1957-1959 to .5 per 100 jumps during 1962-1964. The reason for this enviable safety record lies largely in the intensive training given smokejumpers and in the specially developed equipment they use. In fact, smokejumper training served as a model for the Army's first parachute troops in 1941, and is still used to train air Force air-rescue teams.

The glamour of smokejumping with its rugged physical training has enabled the Forest Service to pick the nation's best qualified men. The 350 smokejumpers employed during the summer of 1965 were selected from more than 2,000 applicants. Every one of them was in perfect physical condition and had already spent at least one summer fighting fires on the ground.

Equipment is important to smokejumpers, as it is in all Forest Service flying. Smokejumpers in their regalia resemble baggy-pants Martians, but the equipment is the product of years of experimentation and research. The suit and mask protects the men from branches and heavy brush, which often is the only landing spot they have. They are equipped with a line with which to lower themselves from treetops, and when they jump they use the now-standard static line, an original smokejumper development. Their 32-foot parachute has two 10-foot slots and can turn 360 degrees in 10 seconds.

Research and equipment development have prompted many other advancements —fire weather forecasting, widespread use of fire-retardant chemicals, hose-laying by helicopter, improved air cargo packaging and other techniques.

The whole business of Forest Service

Borate slurry is loaded above and spread below, left, to smother forest fire. Below right, helicopter spreads antibiotic solution to protect a pine forest in Idaho from blister rust.

Smokejumpers practice precision jumping above left (also cover) and, above right, low level jumping. The 1921 Olympic National Forest patrol is seen below.

Pilots flying for the Forest Service under contract must meet the same general requirements as Forest Service pilots, and must have the following minimum flight experience:

TYPE	PILOT HOURS
In type of aircraft to be flown (10 hours within preceding 30 days)	100
During preceding 12 months	100
Extended cross-country	200
Night flying	50
Mountainous terrain	200
Related type of flying	50
Total (including above)	1,000

In multi-engine flying, the pilot in command must have a currently valid FAA instrument rating.

The Forest Service employs aircraft pilots, as required, who are recruited under Civil Service procedures. The minimum requirements they must meet include a currently valid FAA commercial pilot's license and flight experience as follows:

TYPE	PILOT HOURS
Night flying	250
Instrument flying	100
Multi-engine aircraft	500
Aircraft category in class	500
Mountainous terrain flying	400
Cross-country	500
During last 12 months	100
Total (including above)	3,000

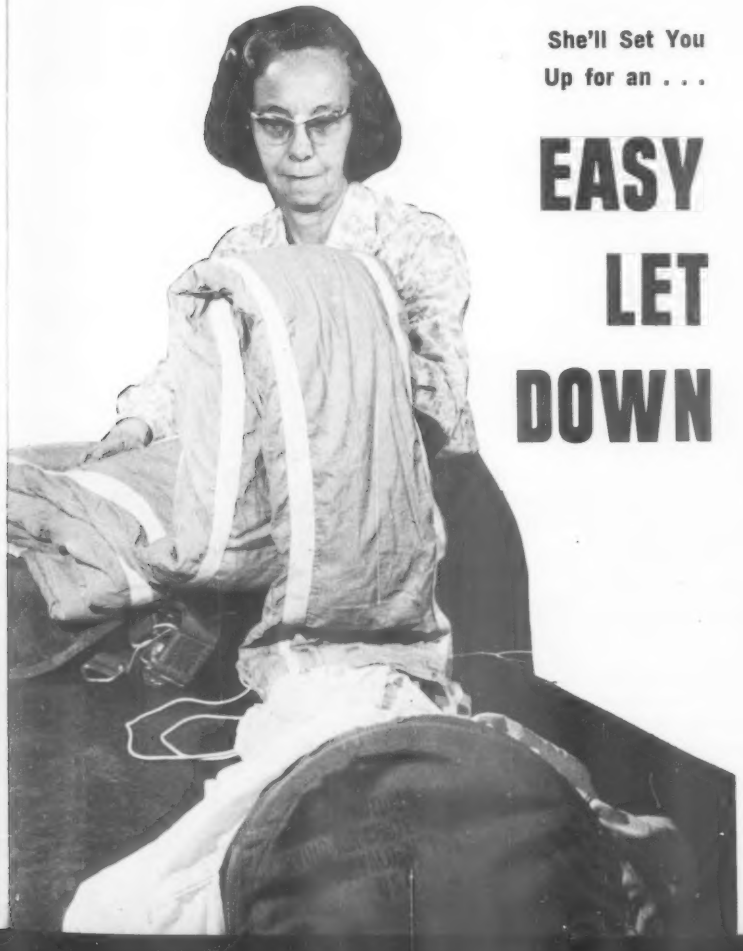
flying, smokejumping, and aerial equipment development has in fact created a tourist attraction at the Missoula, Mont., Smokejumper Base and Equipment Development Center. A special visitor information center has been built there and is host to more than 11,000 visitors each year.

Similar though smaller centers can be seen at other Forest Service aerial depots. The newest and most modern went into operation last year at Redmond, Ore., and includes smokejumpers, a specially trained 50-man regional fire crew, an equipment cache for 5,000 firefighters, air tanker operations, and scout planes and helicopters.

Other major air centers are located at McCall, Idaho; Winthrop, Wash.; Cave Junction, Ore.; Redding, Calif.; and Silver City, N.M. Not included are the many operations based at airports and heliports throughout the National Forests. A contract helicopter may fly for the Forest Service from Spearfish, S.D.; an air tanker from Knoxville, Tenn.; or a scout plane from Ely, Minn. The small out-of-the-way airport you visit as you fly may well be an air base for the protection of our Nation's forest resources.

The Federal Aviation Agency and the Forest Service have found many areas of mutual interest and assistance. The FAA has given much excellent help in instrument training, accident investigations, technical advice, and safety guidance. In turn, the Forest Service Smokejumping Center has trained FAA personnel in parachute rigger courses and related skills.

By Robert D. King, U.S. Forest Service



She'll Set You Up for an . . .

EASY LET DOWN

Men's lives depend upon her strong, quick, small hands. She looks like a school teacher with her sharp eyes framed by rimless glasses.

Mary Eleanor McKay has the only parachute loft in Utah that is certificated by the Federal Aviation Agency. In fact it is the only one within 500 miles of Salt Lake City.

Miss McKay first became interested in parachute work during World War II. She was employed at Hill Air Force Base during the war and was trained in parachute packing, repair and maintenance by the U.S. Army Air Corps.

She opened her own business after earning her certificate. She has been a certificated rigger since 1943 and was Utah's first woman rigger. She is still the only master parachute rigger in the state. To earn the master rating from the FAA, a rigger first earns a senior parachute rigger certificate. This comes after packing 20 chutes of each type—seat, back, chest and lap. A practical examination is taken for each type rating to determine the rigger's proficiency.

To be eligible for the master rating, a person must have had five years of experience as a senior rigger and have packed a minimum of 200 chutes—at least 100 each of two types.

With parachute modification, repair, and maintenance requiring special equipment and knowledge, the FAA permits only master riggers to do major repair and modification on parachutes. Also, only master riggers like Miss McKay are permitted to instruct in the art of parachute packing.

During World War II, Miss McKay would work for eight hours at Hill Air Force Base. She would then come home and pack chutes for another eight hours.

Miss McKay said, "At that time we were packing chutes for all of the flying schools in this area and also for the Civil Air Patrol." Several colleges in Utah were conducting preflight training for the armed forces and the military required parachutes on all of the training flights.

Wartime started the business, but civilian flight training under the GI bill made it flourish. Miss McKay said, "1948 was my best year. We packed more chutes that year than we did in 1944, the busiest war year."

As aviation has become more reliable and the aviation business has matured, the use of parachutes in airplanes has diminished.

But then came the sport parachute jumpers. And just recently a new market opened for the McKay Parachute Co. Drag racers began using parachutes. Drag chutes were first used on aircraft with high landing speeds. On the landing roll, pilots could slow down their aircraft by opening a parachute fastened to the empennage. It helped with directional control and saved the brakes for emergency use. The dragsters have now borrowed a technique from the jet jockey's book.

Today, when the postman drives up in front of the McKay Parachute Co., the packages are still usually king size. Pilots who were trained in this area still send their chutes to Miss McKay. They come from Mexico, Alaska, Hawaii, Florida, Tennessee and Canada, as well as from Utah and surrounding states.

—By Frank W. King.

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famous flights

AMELIA EARHART

WINGED SWEETHEART

By Dick Shea

She was a natural for the part—a young and pretty girl and a licensed pilot. And no poet or Hollywood press agent ever dreamed of a better name for a girl pilot—Amelia Earhart. It swept the stars. But even more fantastic, she could—in face and feature—have successfully passed as a twin sister to Lindbergh, the greatest air hero of them all. Publicity man Hilton Railey, even with all the powers of the mythical Pygmalion, could not have shaped a more likely candidate to be the first woman to conquer the Atlantic by air—initially as a passenger in 1928; later in 1932, as the first woman to fly the Atlantic alone.

Amelia Earhart's 1928 ride across the Atlantic in a twin engine Fokker put her into a publicity orbit from which she was never to leave. From that time on, whatever she did, she was always a headline—right to the end.

A.E.—as she signed herself—had some misgivings about her proposed round-the-world trip—her last big flight. Bradford Washburn, an explorer, navigator and Harvard professor, had, with blunt promptness, turned down her invitation to act as navigator. With prophetic accuracy, he had singled out Howland Island in the Southwest Pacific as the obstacle. He reasoned that with the radio and navigation equipment she would carry, the prospect of flying more than 2,000 miles over the open stretches of the South Pacific to a small island—two miles long and three quarters of a mile wide—represented a hazardous gamble. "If you're off just one degree on your heading, you'll miss that little island completely." He showed no further interest in the project.

But Amelia felt committed, and on June 1, 1937, she and veteran marine navigator Fred Noonan left Miami to circle the globe. From Miami, they continued to Natal on the easternmost point of South America, thence across the South Atlantic to Dakar, the westernmost point of Africa, across Africa to Ethiopia and thence over the Arabian Sea to Karachi. From there, across India to Australia and then New Guinea. There were incidents, but on the whole the trip was going successfully. The two-engine Lockheed *Electra* had behaved well. Now they were heading home. Amelia was tired and anxious to have it done.

They left Lae near the eastern tip of New Guinea at 10 a.m. July 2. Shortly after five that evening, she radioed her position as about 800 miles out and on course. Her next contact was at quarter of three in the morning. She was reporting now to the *Itasca*—a U.S. Coast Guard ship which had been stationed near Howland Island to provide radio support. The *Itasca* could only make out three words of her first message. They were, ominously enough, "cloudy and overcast." At 6:45 a.m., Amelia's voice again cut into the receiver: "Please take a bearing on us and report in half an hour." The ship called her repeatedly in an effort to take a bearing. But the calls went unanswered. At 7:42 Amelia's voice finally came through. She was hurried and nervous, "We must be on you, but cannot see you. Gas is running low. Been unable to reach you by radio. We are flying at altitude 1,000 feet." A few minutes later, she called again, "We are circling, but cannot hear you." At quarter to nine, Amelia called again. Her voice was distraught. "We are in a line of position 157-337! Will repeat this message on 6210 kilocycles! Wait, listening on 6210 kilocycles! We are running north and south!" Then there was silence.

In the radio shack of the *Itasca,* the tension increased. The men listened intently and then began to transmit on all frequencies. The time passed slowly. The waiting continued. But it soon became apparent. Amelia Earhart was down. An air-sea search effort was undertaken, but it was unsuccessful. No trace of the plane or its famous crew was ever found.

In later years, there was considerable speculation about how A.E. and Noonan perished. Officials believe the most reasonable theory is that she missed the island, ran out of gas, and ditched or crashed in the sea. Today Miss Earhart is remembered as the most famous aviatrix in history, a pioneer whose exploits in the air have earned her a glorious chapter.

Tall, slim and 39, Amelia Earhart in front of her Lockheed Electra. Right, Amelia with Capt. Harry Manning and her navigator Fred Noonan.

Letters

FAA

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Coming . . .

Why can't a Canadian who is a currently licensed pilot in Canada rent an aircraft to fly himself while visiting your country? When was the regulations governing this put in force and what is the thinking behind it?

Ontario, Canada

The Federal Aviation Act, *which governs the operations of civil aircraft within the United States, requires that anyone serving as pilot in a U. S. registered aircraft within the United States shall hold an airman certificate issued by the FAA. The basic law has been in effect since aircraft and pilots were first licensed in the U. S. in the late '20s.*

A holder of a foreign pilot license may, however, fly into the U. S. in an aircraft registered in the country from which he received his pilot license. Or he may easily obtain a Special Purpose Pilot Certificate, which will authorize him to pilot U. S. registered aircraft within the United States.

As a Canadian holding a Canadian private or commercial pilot license, you may obtain such a certificate by passing a simple examination on FAR Part 91—General Operating and Flight Rules. The certificate will bear ratings equivalent to those on your Canadian pilot license and may authorize tourist and sightseeing flights in U. S. aircraft within the United States.

• . . . And Going

I am a student pilot and according to regulations a student pilot is not allowed to pilot an airplane solo on an international flight . . . . I don't want to break any rules, but it's hard to understand why I can't fly over to Canada. Do FAA rules stop at the border? What difference does it make if I happen to be flying in Canada? What is the penalty for breaking that rule, *not* that I intend to?

Detroit

The pilot standards of the International Civil Aviation Organization, of which the United States is a member, provide for the mutual recognition of pilot licenses issued by all member nations, but specify that student *pilots shall not be authorized to make international flights except by special arrangement between the nations concerned. No such special arrangement exists between the United States and Canada. Therefore, should you engage in a flight across the border, you would be in the position of flying over Canadian territory without a valid pilot license.*

We cannot provide you with a specific answer to your question concerning the penalty for breaking the rule. Each "noncompliance" with a regulation is investigated and appropriate enforcement action is taken based on evidence.

If you are interested in making flights to Canada we suggest you complete your qualifications for a private pilot certificate.

• 12 Going on 13 (in 10 Months)

I wrote to a fixed base operator and I asked if I am old enough to get my student pilots license. They said no, not yet. But they said that I can get a certificate that says I can fly the plane with a licensed pilot aboard. I am enclosing a piece of paper that states that. All you would have to do is sign it and keep a record of it. I would not mind it if you would like to send me questions to answer to see if I am worthy of this certificate. I promise if you do send me questions I will not cheat. I will do the best I possibly can. I think I could pass the test because I have been reading for the last two months. I am still reading and will keep on reading to make sure that I know all there is to know about flying and airplanes.

My cousin, who flies for an airline, is helping me train in the Piper *Apache*. I am 12 going on 13 in 10 months. Thank you very much for so much time you spent on my letter.

East Brunswick, N. J.

The FAA is pleased to know of your interest in learning to fly. Although Federal Aviation Regulations *do not spell out all the steps one must take to obtain instruction, they do state that you must have a student pilot certificate endorsed by a flight instructor before flying solo. As you probably know, you must be at least 14 years old for a student pilot certificate to pilot a glider and at least 16 years old to pilot any other aircraft. (You will be interested in reading the* Student Pilot Guide *which can be picked up at FAA general aviation district offices or purchased for 15¢ from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.)*

The regulations do not require that you have a certificate to handle the controls if you are with a licensed pilot who is responsible for the flight. However, you are not permitted to log any flying time unless the pilot who is responsible holds a current flight instructor certificate.

At present it will not be necessary to ask you any questions, but you will be glad you have been studying when you take your examination for a private pilot's license, perhaps as soon as 1969. Best of luck.

• On Instruments

I am a commercial pilot flying for a small airline as a copilot. As I understand the flight instrument regulations, *all* flight instruments must be checked every 10 hours as well as every 10 days for accuracy.

I wonder if your office knows how many small airlines and corporations do not adhere to this mandatory regulation? I know a few that just write it off and the work is never done, which leaves the pilots to do some guess work on approaches, etc.

There are lots of fellow pilots that would like to see something done about this on a spot check arrangement.

We have flown aircraft where the log book shows this has been accomplished, just to find ourselves on instruments that are not within the limits, or not working at all.

Chicago

Federal Aviation Regulations *Part 91.25 (a) states that a civil aircraft operated under IFR using the VOR system of radio navigation must have the VOR equipment operationally checked within the preceding 10 hours of flight time and within 10 days before flight unless the VOR equipment is maintained, checked and inspected under a maintenance program approved by the administrator of the FAA. This rule does not apply to all flight instruments.*

FAR *part 91 requires that any aircraft carrying any person (other than a crew member) for hire must be inspected every 100 hours and returned to service by an authorized person, unless it is inspected on a progressive inspection program or maintained in accordance with a continuous airworthiness program under* FAR *part 121 or 127. Failure to have required inspections performed is a violation of the* FARs.

FAA inspectors do perform spot inspections of a representative number of aircraft and their maintenance records each month.

• Placard Pointers

FAA regulations require an operations limitations placard to be displayed in each aircraft, but I have been unable to secure any clear-cut answers to the following questions: (1) Are these placards issued or sold by the FAA? (2) Must the FAA approve a placard for each individual aircraft or only for each model? (3) Do the manufacturers supply such placards or duplicates in case one is lost? (4) Does an owner's manual qualify as an operations limitation placard? (5) Just where do I obtain such a placard? (6) What flight maneuvers are covered?

J. E. Bayan
Northridge, Calif.

(1&2) No, the placards are not sold by FAA, but are installed in the airplane by the manufacturer as part of the type design. (3) Yes. Approved placards carry part numbers and can usually be ordered as replacement parts. (4) No, the owner's manual with official status is the FAA approved airplane flight manual included with many aircraft and so identified. (5) See #1 and #3. (6) The flight maneuver placard requires: For airplanes certificated in the Normal Category, all acrobatic maneuvers, including spins, are prohibited. For airplanes certificated in the Utility Category, a placard shall state: Acrobatic maneuvers are limited to the following: List approved maneuvers. (These maneuvers are selected by the manufacturer, tested and approved by the FAA during type certification of the airplane.) For airplanes certificated in the Acrobatic Category: A placard shall be provided listing all approved maneuvers and recommend entry airspeed for each.

More detailed information may be found in Federal Aviation Regulations, *Part 23, Sec. 23.1541, "Markings and Placards."*

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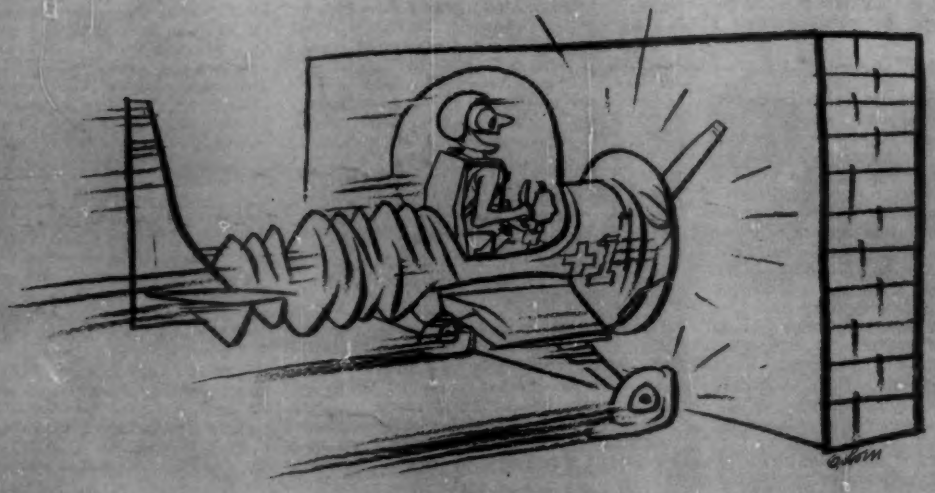

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